Meta-model validation of integrated MARTE and component-based methodology component model for embedded real-time software

Abstract:

A validation process for integrated model-based methodology for component-based embedded real-time software with a profile is presented in this paper. Unified Modeling Language for Modeling and Analysis Real-Time and Embedded System, as a newly developed profile has been introduced to overcome problems in previous profiles. Nevertheless, a sound and systematic methodology is needed in order to tackle complexity problems that arose. The objective of this paper is to validate the integrated profile and a selected component-based methodology component model for satisfying embedded real-time software requirements, thus helping engineers to model their system, enhancing the structure and component modeling. For that, this paper described a component model meta-model validation process using quality matching for the integration process, involving a profile and a methodology. Nevertheless, this paper focused more towards the validation of the integrated component model before can be implemented on Embedded Real-Time software development, whereby the proposed integration component model is applied on a case study to show its enhancements. The integration result will support to solve complexity whereby the profile is used to solve the lack of specific modeling language notation for embedded real-time system and the method can provide a systematical software process.